

CLAIMS

Having thus described the aforementioned invention, I claim:

1. A semi-trailer for contained transport of salvageable materials, comprising:
 - a platform supported by a wheeled undercarriage for towed transport, said platform having a first sidewall extended along a first side and having a second sidewall extended along a second side of said platform, each first and second sidewall having upper portions extended upwardly to bound an open top having a sufficient width to receive salvageable materials therein;
 - front and rear end walls extended between said first and second sidewalls;
 - a partition wall spaced apart between said front and rear end walls, said partition wall being upwardly oriented for separation of said platform into a forward compartment and a rearward compartment;
 - said second sidewall is mounted for clamshell movement between a closed position aligned along said second side and a raised position above said platform, said second sidewall including front and rear upper support segments extending laterally adjacent of respective front and rear end walls, each upper support segment having front and rear connecting ends pivotably mounted proximal of respective front and rear upper portions of said first sidewall; and
 - a lifting mechanism for movement of said second sidewall to said raised position above said platform;
 - whereby side access to said platform is provided for loading and unloading of salvageable materials with said second sidewall in said raised position and said second sidewall is pivotable to said closed position for containment of salvageable materials during towed transport.

1 2. The semi-trailer of Claim 1 wherein said lifting mechanism including front
2 and rear cylinders having at least one reciprocating front and rear piston slidably
3 extendable from each respective cylinder, said front and rear cylinders having
4 pivotable base ends positioned exterior of respective mid-portions of each front
5 and rear end wall, each extendable piston having a piston end configured for
6 pivotable connection to a mid-junction of respective front and rear upper support
7 segments of said second sidewall, each cylinder being supplied by a hydraulic
8 linkage extending from a hydraulic power system positioned on said platform, said
9 hydraulic power system and respective front and rear cylinders being controlled by
10 an operator.

1 3. The semi-trailer of Claim 1 wherein said second sidewall including:
2 an upper support frame extended lengthwise between respective upper front
3 and upper rear portions of said second sidewall;
4 a lower frame edge extended lengthwise between respective lower front and
5 rear portions of said second sidewall, said lower frame edge is disposed to sealingly
6 engage against said platform second side when said second sidewall is in said
7 closed position;
8 a middle upper support segment extending laterally adjacent of said
9 partition wall and having a connecting end of sufficient length to pivotably mount
10 proximal of a mid-portion of said first sidewall;
11 said front upper support segment extended laterally adjacent of said front
12 end wall for traversal of said platform when said second sidewall is in said closed

13 position;

14 said rear upper support segment extended laterally adjacently of said rear
15 end wall for traversal of said platform when said second sidewall is in said closed
16 position; and

17 said open top being bounded by said front upper support segment, said
18 upper support frame of said second sidewall, said rear upper support segment,
19 and said upper portion of said first sidewall when said second sidewall is in said
20 closed position;

21 whereby when said second sidewall is in said closed position, said platform
22 provides loading and unloading of salvageable materials from overhead through
23 said open top.

1 4. The semi-trailer of Claim 1 wherein said second sidewall further including:

2 a middle upper support segment extended parallel above said partition wall
3 extended across said platform between said front and rear end walls, said middle
4 upper support segment including:

5 a substantially triangular central body composed of a rigid material
6 supported by a rigid triangular middle frame;

7 said middle upper support segment extending to said connecting end
8 pivotably mounted to said first sidewall; and

9 a middle angled base member extending from said middle upper support
10 segment to said lower base frame of said second sidewall, said middle angled base
11 member is disposed in alignment above said partition wall when said second
12 sidewall is in said closed position.

1 5. The semi-trailer of Claim 2 wherein said lifting mechanism further including
2 a middle cylinder having a hydraulically actuated piston slidably extendable
3 therefrom in synchronous movement with said front and rear pistons for pivoting
4 said second sidewall, said middle cylinder positioned within said partition wall.

1 6. The semi-trailer of Claim 3 wherein said lifting mechanism further
2 including:

3 a front hydraulic cylinder having a front piston reciprocatingly extendable
4 therefrom, said front hydraulic cylinder is pivotably connected to said platform
5 exterior of a mid-portion of said front end wall, said front piston having a distal
6 end extendable to connect to a mid-portion of said front upper support segment;

7 a rear hydraulic cylinder having a rear piston reciprocatingly extendable
8 therefrom, said rear hydraulic cylinder is pivotably connected to said platform
9 exterior of a mid-portion of said rear end wall, said rear piston having a distal end
10 extendable to connect to a mid-portion of said rear upper support segment;

11 a hydraulic power system and motor disposed on said platform, said
12 hydraulic power system having a plurality of hydraulic hoses detachably extended
13 to respective front and rear hydraulic cylinders, said hydraulic power system and
14 motor provides sufficient hydraulic pressure transmitted through said plurality of
15 hydraulic linkages for synchronous actuation and extension of respective front
16 and rear pistons for synchronous movement of said front and rear upper support
17 segments and said second sidewall; and

18 a control mechanism in communication with said hydraulic power system

19 and motor, said control mechanism is activated by an operator for controlled
20 synchronous movement of said front, middle and rear upper support segments
21 and said second sidewall relative to said platform between said raised position and
22 said closed position.

1 7. The semi-trailer of Claim 3 wherein said second sidewall further including:
2 said front upper support segment having a substantially triangular central
3 body composed of a mesh material allowing air flow therethrough, said mesh
4 material being supported by a rigid triangular first frame including:

5 said front upper support segment;

6 a lower front junction joined to said lower frame of said second
7 sidewall; and

8 an angled front support member extending between said front
9 upper support segment and said lower frame of said second sidewall,
10 said angled front support member disposed in alignment with said
11 front end wall when said second sidewall is in said closed position;

12 and

13 said rear upper support segment having a substantially triangular central
14 body composed of said mesh material allowing air flow therethrough, said mesh
15 material being supported by a rigid triangular second frame including:

16 said rear upper support segment;

17 a lower rear junction joined to said lower frame of said second
18 sidewall; and

19 an angled rear support member extending between said rear

20 upper support segment and said lower frame of said second sidewall,
21 said angled rear support member disposed in alignment with said
22 rear end wall when said second sidewall is in said closed position;
23 whereby said second sidewall moved to said raised position provides each
24 triangular central body of respective front and rear upper support segments to be
25 cantilevered above said front and rear end walls thereby providing unobstructed
26 side access to said forward and rearward compartments.

1 8. The semi-trailer of Claim 1 wherein said platform supported by said wheeled
2 undercarriage including a front support disposed in a retracted position under
3 said platform front end wall, said front support is extendable to rest on a
4 supporting surface for level positioning of said platform during loading and
5 unloading, said front support is retractable to said retracted position under said
6 platform front end wall during towed transport of said platform and wheeled
7 undercarriage when coupled with a tractor-trailer vehicle.

1 9. The semi-trailer of Claim 5 wherein said partition wall including a forward
2 and a rear wall segment having an internal cavity therein, said forward and rear
3 wall segment surrounding said middle cylinder and piston extendable therefrom,
4 said internal cavity being accessible from a rear removable panel in said rear wall
5 segments, said removable panel being removable to provide an opening to said
6 internal cavity having said middle cylinder and piston therein.

1 10. The semi-trailer of Claim 1, further comprising said first sidewall, said front

2 and rear end walls, and said second sidewall being constructed of a plurality of
3 spaced-apart studs extending between aligned in upright orientation along
4 respective upper and lower portions of each one of said first sidewall, said front
5 and rear end walls, and said second sidewall, said plurality of spaced-apart studs
6 having outboard surfaces for support thereon of a generally continuous exterior
7 surface layer composed of a mesh material allowing air flow therethrough.

1 11. A semi-trailer for transport of salvageable materials, comprising:

2 a platform supported by a wheeled undercarriage for towed transport, said
3 platform having a first sidewall extended parallel of a first side of said platform,
4 and having front and rear end walls extended laterally from respective front and
5 rear ends of said first sidewall to a second side of said platform;

6 a second sidewall pivotably mounted to upper portions of said first sidewall,
7 said second sidewall reciprocatingly moved between a closed position adjacent to
8 said platform second side and a raised position disposed above said platform, said
9 second sidewall including:

10 a front upper support segment aligned adjacently parallel with
11 said front end wall when said second sidewall is in said closed
12 position;

13 a rear upper support segment aligned adjacently parallel with
14 said rear end wall when said second sidewall is in said closed
15 position;

16 said front and rear upper support segments extend a width of
17 said platform to pivotably connect at respective front and rear upper

18 portions of said first sidewall, said first sidewall and front and rear
19 upper support segments of said second sidewall having upper
20 portions bounding an open top having a sufficient width and length
21 for positioning salvageable materials therein; and
22 a lifting mechanism for reciprocating movement of said second sidewall to
23 said raised position above said platform; and
24 a partition wall positioned parallel to and between said front and rear end
25 walls, said partition wall separating said platform into a forward compartment and
26 a rearward compartment;
27 whereby said second sidewall moved by said lifting mechanism to said
28 raised position provides unobstructed side access to said platform for positioning
29 salvageable materials in either of said forward and rearward compartments, and
30 said second sidewall moved to said closed position provides containment of the
31 salvageable materials during towed transport.

1 12. The semi-trailer of Claim 11 wherein said second sidewall including:
2 an upper support frame extended between an upper front portion and an
3 upper rear portion of said second sidewall, said upper support frame supported by
4 said front and rear upper support segments for clamshell movement between said
5 closed position and said raised position;
6 a lower frame extended from a lower front corner and a lower rear corner of
7 said second sidewall, said lower frame providing a base edge of sufficient
8 horizontal length to sealingly engage against said platform second side when said
9 second sidewall is in said closed position;

10 said front upper support segment is extended laterally from said upper
11 support frame for traversal of said platform adjacent to said front end wall when
12 said second sidewall is in said closed position, said front upper support segment is
13 extended the width of said platform to pivotably mount to said front upper portion
14 of said first sidewall; and

15 said rear upper support segment extended laterally from said upper support
16 frame for traversal of said platform adjacent to said rear end wall when said
17 second sidewall is in said closed position, said rear upper support segment is
18 extended the width of said platform to pivotably mount to said rear upper portion
19 of said first sidewall;

20 whereby said second sidewall composed of said upper support frame, said
21 lower frame, said front upper support segment and said rear upper support
22 segment is reciprocatingly moved by said lifting mechanism between said closed
23 position and said raised position.

1 13. The semi-trailer of Claim 11 wherein said lifting mechanism including:

2 a first and second hydraulic cylinder positioned exterior of respective mid-
3 portions of said front and rear end walls;

4 said first hydraulic cylinder having a first hydraulic piston extendable
5 therefrom, said first hydraulic cylinder is pivotably attachable at a base end to said
6 front end wall proximal of said platform, said first hydraulic piston having a first
7 piston distal end pivotably attachable proximal of a front mid-portion of said front
8 upper support segment;

9 said second hydraulic cylinder having a second hydraulic piston extendable

therefrom, said second hydraulic cylinder is pivotably attachable at a base end to said rear end wall proximal of said platform, said second hydraulic piston having a second piston distal end pivotably attachable proximal of a rear mid-portion of said rear upper support segment; and

a hydraulic system positioned on said platform and including a hydraulic power generator and a plurality of conduit linkages in fluid connection between said hydraulic power generator and respective first and second hydraulic cylinders;

whereby said hydraulic system being controlled by an operator for synchronized movement of said first and second piston distal ends for movement of said front and rear upper support segments and said second sidewall between said closed position and said raised position thereby providing unobstructed side access for positioning salvageable materials in either forward and rearward compartments on said platform.

14. The semi-trailer of Claim 12 wherein second sidewall further including:

said front upper support segment including a substantially triangular width having a first central gusset member and a first lower support edge aligned with said front end wall when said second sidewall is in said closed position;

said rear upper support segment including a substantially triangular width having a second central gusset member and a second lower support edge aligned with said rear end wall when said second sidewall is in said closed position;

a middle upper support segment extending laterally from said second sidewall to be pivotably joined proximal of said first sidewall, said middle upper

10 support segment including a substantially triangular width, a third central gusset
11 member, and a third lower support edge aligned with said partition wall when said
12 second sidewall is in said closed position; and

13 each central gusset in respective front, rear and middle upper segments are
14 composed of a mesh material allowing air flow therethrough.

1 15. The semi-trailer of Claim 14 wherein said second sidewall further including:

2 said front upper support segment having a front pivot connector end
3 extended to releasably connect in pivoting relationship proximal of said front end
4 wall junction with said upper front portion of said first sidewall;

5 said rear upper support segment having a rear pivot connector end
6 extended to be releasably connected in pivoting relationship proximal of said rear
7 end wall junction with said rear upper portion of said first sidewall; and

8 said middle upper support segment having a middle pivot connection
9 extended to be releasably connected in pivoting relationship proximal of said
10 partition wall junction with said first sidewall.

1 16. The semi-trailer of Claim 11 wherein said platform is supported by said
2 wheeled undercarriage further including a front support disposed under said
3 platform front end wall, said front support is extendable to a supporting surface
4 from maintenance of said platform in level configuration during loading and
5 unloading, said front support is retractable during towed transport of said
6 platform and wheeled undercarriage when coupled to a tractor-trailer vehicle for
7 towed transport.

1 17. The semi-trailer of Claim 11, further comprising said first sidewall and said
2 second sidewall being constructed upper and lower frame members having a
3 plurality of spaced-apart studs extending between each respective upper and lower
4 frame members, each of said first sidewall and said second sidewall having a
5 generally continuous exterior surface composed of a mesh material allowing air
6 flow therethrough, said mesh material being supported by said plurality of spaced-
7 apart studs extended between each respective upper and lower frame members.

1 18. A semi-trailer for contained transport of salvageable materials, comprising:
2 a platform supported by a wheeled undercarriage for towed transport, said
3 platform having an adequate width between first and second sides to receive a
4 plurality of salvageable materials thereon, said platform including:

5 a first sidewall disposed to extend upward along said platform first side;
6 front and rear end walls extended upwardly from said platform and forming
7 respective front and rear corner junctions with said first sidewall;

8 a second sidewall mounted for clamshell movement between a closed
9 position aligned along said second side and a raised position above said platform,
10 said second sidewall including front and rear upper support segments extending
11 laterally adjacent of respective front and rear end walls, each upper support
12 segment having front and rear connecting ends pivotably mounted proximal of
13 respective upper portions of said front and rear corner junctions with said first
14 sidewall;

15 a partition wall positioned to traverse said platform between said front and

16 rear end walls, said partition wall separating said platform into a first
17 compartment and a second compartment; and

18 a lifting mechanism for reciprocating clamshell movement of said second
19 sidewall between said closed position and said raised position;

20 whereby said platform is loaded and unloaded through said open top when
21 said second sidewall is in said closed position, and said platform is loaded and
22 unloaded utilizing side access along said second side of said platform when said
23 second sidewall is in said raised position above said platform.

1 19. The semi-trailer of Claim 18 wherein said second sidewall including:

2 an upper support frame extended lengthwise between an upper front corner
3 and an upper rear corner of said second sidewall when moved to said closed
4 position adjacent said platform second side, said upper support frame supported
5 for clamshell movement from said closed position adjacent said platform second
6 side to said raised position above said platform;

7 a lower frame of sufficient width to extend from said upper support frame to
8 a base edge having sufficient length to sealingly engage against said platform
9 second side when said second sidewall is in said closed position;

10 a front upper support segment extended perpendicular from said upper
11 front corner of said upper support frame for traversal of said platform above said
12 front end wall, said front upper support segment extended to pivotably mount to
13 said front corner junction of said first sidewall at an elevated height above said
14 platform; and

15 a rear upper support segment extended perpendicular from said upper rear

16 corner of said upper support frame for traversal of said platform above said rear
17 end wall, said rear upper support segment extended to pivotably mount to said
18 rear corner junction of said first sidewall at an elevated height above said platform;
19 whereby said second sidewall composed of said upper support frame, said
20 lower frame, said front upper support segment and said rear upper support
21 segment is moved in reciprocating clamshell movement between said closed
22 position and said raised position.

1 20. The semi-trailer of Claim 18 wherein said lifting mechanism including:

2 a first pneumatic cylinder having a base pivotably connected to an exterior
3 portion of said front end wall and having a first pneumatically activated piston
4 extended to attach at a pivoting connection disposed on a mid-portion of said first
5 support arm of said second sidewall;

6 a second pneumatic cylinder having a base pivotably connected to an
7 exterior portion of said rear end wall and having a second pneumatically actuated
8 piston extended to attach at a pivoting connection disposed on a mid-portion of
9 said second support arm of said second sidewall; and

10 a pneumatic pressure generator and a plurality of a pneumatic linkages
11 positioned to connect between said pneumatic pressure generator and respective
12 first and second pneumatic cylinders;

13 whereby said pneumatic pressure generator being controllable by an
14 operator for synchronized movement of said first and second pneumatically
15 actuated pistons for movement of said upper front and rear support arms and said
16 second sidewall from said closed position to said raised position thereby providing

17 unobstructed second side access for loading and unloading salvageable materials
18 on and off of said platform.

1 21. The semi-trailer of Claim 18 wherein said second sidewall further including:
2 said front upper support segment including a substantially triangular width
3 in cross-section and having a reinforced central gusset member and a first lower
4 support edge disposed in alignment above said front end wall when said second
5 sidewall is moved to said closed position;

6 said rear upper support segment including a substantially triangular width
7 in cross-section and having a reinforced central gusset member and a second
8 lower support edge disposed in alignment above said rear end wall when said
9 second sidewall is moved to said closed position;

10 said front upper support segment having a front pivot connection end
11 releasably connected by a first pivot member to said front corner junction of said
12 first sidewall at said elevated height above said platform; and

13 said rear upper support segment having a rear pivot connection end
14 releasably connected by a second pivot member to said rear corner junction of said
15 first sidewall at said elevated height above said platform.

1 22. The semi-trailer of Claim 18 wherein said platform is supported by said
2 wheeled undercarriage including a front support disposed under said front end
3 wall, said front support is extendable in length to contact a supporting surface
4 thereby providing substantially level orientation of said platform during loading
5 and unloading, whereby said front support is retractable during towed transport of

6 said platform and wheeled undercarriage when coupled to a tractor-trailer vehicle.

1 23. The semi-trailer of Claim 18, further comprising said first sidewall, said
2 front and rear end walls, and said second sidewall being constructed upper and
3 lower frame members having a plurality of spaced-apart studs extending between
4 each respective upper and lower frame members, each of said first sidewall, said
5 front and rear end walls, and said second sidewall having a generally continuous
6 exterior surface composed of a mesh material allowing air flow therethrough, said
7 mesh material being supported by said plurality of spaced-apart studs extended
8 between respective upper and lower frame members.

1 24. The semi-trailer of Claim 20 wherein said partition wall includes a forward
2 and a rear wall segment having an internal cavity therebetween, said forward and
3 rear wall segments enclosing said internal cavity in which a third pneumatic
4 cylinder is disposed, said third pneumatic cylinder having a third piston
5 extendable therefrom for connection to said middle upper support segment of said
6 second sidewall, said forward and rear wall segments each having a removable
7 panel pivotably positioned for periodic access to said third pneumatic cylinder
8 within said internal cavity.